The MAC Flyer

OCTOBER 1982

Tricks of the Trade . . . page 13

The MAC Flyer

MILITARY AIRLIFT COMMAND

GEN JAMES R. ALLEN Commander in Chief
BRIG GEN PHILIP S. PRINCE Inspector General
COL LOUIE O. McFERON Director of Safety

MAJ JAMES M. LEE Supervising Editor
CAPT GALE E. CLOUSE, JR. Associate Editor
CAPT BYRON L. HOWARD Associate Editor
FRANCES A. CALDWELL Managing Editor
TOM O'LAUGHLIN Art Director

For Greater Safety and Efficiency in MAC Air Operations.

MACRP 127-5 OCTOBER 1982 VOL XXIX NO. 10

page 8

page 16

page 25

Flying the MLS 3
Excellence in Airmanship 6
Direct Oceanic Communication 8
The Things That They'd Learned 11
Bad Habits—Not Tricks of the Trade .. 13
Historic Flight 16
Flight Lines 19
Physiological Training 20
Mishap with a Moral 22
Flying-Hour Milestones 24
C. R. Terror 25
Quick Stoppers 28

The MAC Flyer is published by the Directorate of Safety, Military Airlift Command, and is authorized until 26 Oct 1983, unless authorized to continue before that date. The contents are informative and not regulatory or directive. Names of people and places in mishap stories are fictitious; photos in mishap stories are representative and not necessarily of the aircraft or equipment involved. Information in any article may not be construed as incriminating under Article 31, UCMJ.

Contributions, comments and criticisms are welcome. Write: *The MAC Flyer*, HQ MAC/IGFE, Scott AFB, IL 62225; or call 618-256-3534 or autovon, 638-3534. The editors reserve the right to make any editorial changes in manuscripts which they believe will improve the material without altering the intended meaning.

Subscriptions are available from: The Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Price: $2.50 per copy, $17.00 per year (foreign address $3.15 per copy, $21.25 per year). Changes of address for subscription mailing should be sent to GPO; give old and new address, including zip codes. USAF Active and Air Reserve Forces units establish requirements for this magazine through their publication distributor (DAPD). Other U.S. Military units should consult administrative directives. *The MAC Flyer* is published at an approximate ratio of one magazine for every five MAC aircrew members, and one for every twenty MAC support personnel.

Distribution F, X; OPR: HQ MAC/IGFE
ISSN 0024-788X

COVER PHOTO: HH-3 E helicopter, inflight.

TMF Pilot Report: Flying the Microwave Landing System

by Captain Byron L. Howard
Associate Editor

Washington D.C. Versatility and reliability are just two of the many characteristics of the microwave landing system (MLS) demonstrated to this *TMF* editor during a recent orientation flight sponsored by the Federal Aviation Administration (FAA). A part of the FAA program to familiarize potential users of the MLS with its capabilities, my flight in the FAA Beechcraft King Air 200 was also designed to develop MLS inflight check procedures. The plan called for departure from the FAA flight operations facilities located at Hangar 6, Washington National Airport (DCA). From there, we would fly to the NASA Wallops Flight Center, site of one of the MLSs currently undergoing continuous test and evaluation by several agencies. Once there, we planned to shoot several MLS "raw-data" approaches changing our azimuth and glide path angle to simulate approaches to various airports and different operational situations. At the end of the flight we were to return to DCA for one final approach to the "small community" MLS set up on the airfield.

Arriving at FAA Hangar 6 at 0800 one Friday morning, I was greeted by Mr. Don Elam, an Aviation Safety Inspector with the FAA's Flight Standards Division. Don, having been involved with MLS testing for the past 2 years, was well qualified to explain the details. At that time, Don was helping flight test a general aviation area navigation (RNAV) computer that could use MLS signals and VOR signals to establish waypoints. Advantages of this RNAV/MLS combined system are its potential low cost and its ability to project a segmented approach path for general aviation aircraft. This system gives them the ability to fully exploit the advantages of the MLS.

"We've installed the J.E.T. Electronics RNAV computer in the King Air we'll be flying today," he told me. "But we won't be using it because of a software problem. We hope to have the bugs out of the RNAV/MLS interface within the next few weeks." (Editor's note—As of this writing, a commuter airline has proposed to the FAA that airlines with RNAV/MLS equipment be allowed to make simultaneous instrument approaches with larger aircraft on converging or intersecting runways. Besides the previously mentioned advantages of such an RNAV/MLS interface, this combined system allows coupled approaches, giving the pilot the capability of "fine-tuning" approaches by filtering the MLS precision data thorugh the RNAV computer.)

Cockpit detail showing installation of the J.E.T. Electronics RNAV control panel modified for reception of MLS data.

DATE 134 TIME 0949:48
SYSTEM IS ON AND IN OPER
RSTRTS- TODAY 000 - YSTRDAY 000
00 BEAM ACCURACY.
MEAN = +0.004 DEG
LIMS = -0.071 AND +0.071 DEG
PREV = +0.004 DEG_

Inside enclosed area behind the azimuth antenna is the MLS monitoring equipment. CRT here displays real-time information as well as a record of past performance of MLS approach aid.

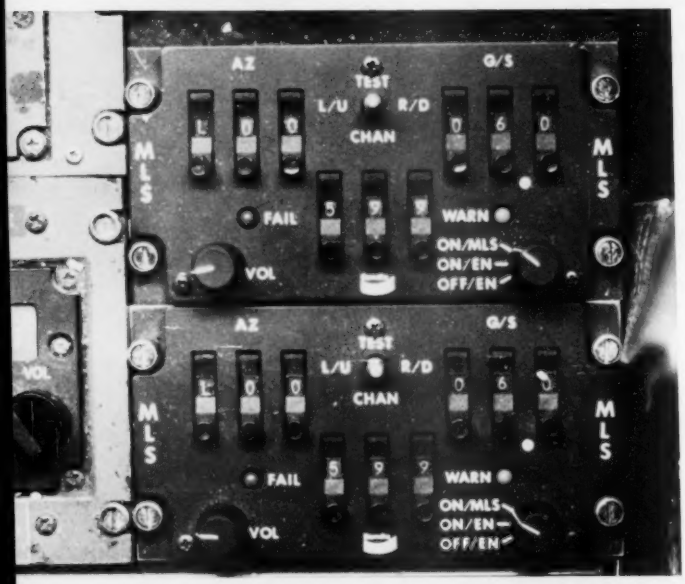
After a brief discussion of MLS theory, Don and I went out to look over the MLS transmitters and antenna which compose the "small community" system set up at DCA.

"Most MLSs will not be as limited as this one," he explained. "The FAA is planning to acquire only a few MLSs with less than ±40° azimuth scan. In addition," he continued, "all planned MLSs will have a glide path of 0.9° to + 15°."

The digital design of the ground equipment was evident—all electronics were small, line-replaceable units. All components were easily accessible and were almost totally "plug-out, plug-in." One of the safety features of the ground equipment was its self-monitoring ability.

"Today, a technician has to go out routinely and inspect the older ILS equipment. The MLS will not require this," Don pointed out. "Personnel from the tower, for example, will remotely operate and monitor every aspect of the ground equipment. This is a very positive advantage over older precision approach aids. The MLS has, from the start, been engineered for reliability and safety."

After a further inspection of other ground equipment located around the airfield complex, Don and I returned to the operations facility to await the return of "King Air 4," the call sign of the FAA Beechcraft.



MLS control panels. Each panel contains controls for frequency (channel), azimuth (course), and glide slope selection. Also visible are "fail" and "warning" lights.

Flying the MLS

Once the King Air arrived, we flight planned our departure and arrival at the busy airport. We planned enough time to allow a close look at the MLS equipment in the Beechcraft. On the way out to the plane, Don began his exterior inspection.

"About the only thing you'll notice is this one small antenna here," he said, pointing to the one underneath the tail, "and one just like it in front of the windshield, the object being to provide 360° coverage." After we finished our walk-around, we climbed inside the cockpit to inspect the control panels and MLS-unique displays.

In this aircraft, the main control panels for the dual-MLS receivers are located between the pilots, right next to the precision DME or DME/P controls which are also part of the total MLS.

"When frequency allocations are made in the near future," Don explained, "all a pilot will have to do is dial one frequency for both the MLS and that approach's corresponding DME/P. In this early stage of hardware development though, we have to dial in one frequency for the MLS and one for its corresponding DME/P."

Other than setting up two different frequencies for an approach, the other differences readily apparent between the MLS and other approach and landing aids are the pilot-selectable azimuth and glide slope. Both of these control panels are located on the same control panel as the MLS frequency selector. In actual operation, pilots have the option of selecting the glide slope that best suits their aircraft or situation within certain parameters.

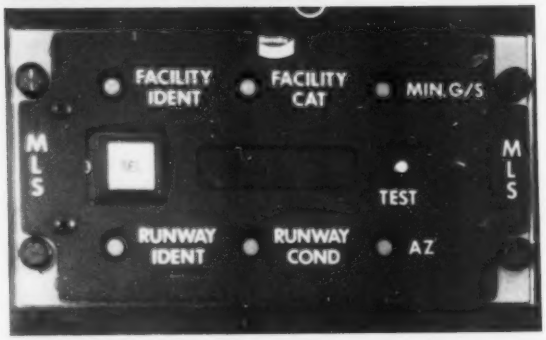
"The microwave landing system has several inherent safety features allowing a pilot the maximum in operational flexibility," Don explained. "Once the MLS goes into operation, each approach will have certain limits on the maximum and minimum glide slope, and maximum azimuth, (or course offset) that can be selected by the pilot. If a pilot selects a glide path that goes beyond those limits for which a particular approach is designed, he'll get both a visual and an aural warning." Don then selected the DCA MLS frequency for a demonstration.

"Here at DCA, we have a 6° minimum glide slope angle. If a pilot were to set in 4°, for example, he'd get a flashing light on the control panel telling him he had erred. What you have," he continued, "is a machine—the MLS transmitter—talking to another machine—the airborne receiver. They know the limits of the approach and, in reality, so will the pilot. If the pilot mistakenly dials in a wrong number, the computer—the MLS—will tell him.

"The MLS is referred to as a 'multiplex' system," Don further explained. "On one radio wave, we'll be able to send many different bits of information." With that, he showed me the annunciator panel located just behind the bulkhead separating the passenger compartment from the cockpit. Again, this is just a prototype piece of equipment. The MLS annunciator panel allows six sets of data to be called up individually. They include: "facility ident;" "facility cat," or category; "min g/s," or minimum glide slope; "runway ident;" "runway condition" and "azimuth." A digital display in the center of the panel further defines the specific information for one of the six categories. By pushing the "SEL" button until the "min g/s" light came on, for example, we would read out "1.5" on the digital display, providing the

pilot with further back-up safety indications.

Once these various systems were explained to me, we were at last ready to do some flying. With FAA pilot Dick Sciolto aboard, Don brought the King Air's twin Pratt & Whitney PT-6s to life and we taxied to National's runway 3. Departure from the DCA control area proved easy enough. Within 30 minutes, we began our letdown to the NASA Wallops Flight Center. After our initial call to Patuxent Approach, we told them we would be shooting the MLS precision approach to Wallops' runway 22. After a short pause, Pax Approach came back with the inevitable.



Prototype MLS annunciator panel. Pushing the "SEL" button calls up specific information like "runway condition," or minimum glide slope.

"Sorry, King Air 4. We show no precision approach aids to Wallops. How about a tacan approach?"

We chuckled to ourselves lightly, then cancelled IFR and contacted Wallops tower. On initial contact, we informed Wallops tower we would be shooting the MLS with multiple approaches. They consequently cleared us to do whatever we wanted and just asked us to keep them informed. Wallops tower reported no traffic in the area and gave us the current weather and altimeter setting.

"Let's shoot this one as a straight-in, everyday, run-of-the-mill precision approach," Don suggested. He dialed in the frequency of the approach, set up a 2.0° glide slope and no offset for the course. Don flew the first approach. We configured 10 miles out, slowed to our approach speed of 120 knots, and coupled the autopilot for the approach. The cockpit indications for the course and glide path indications in the King Air were the normal ones you'd see in any plane configured for an ILS approach. Don leveled the Beechcraft at a decision height of 200 feet AGL and flew down the centerline of the runway. The course indicator on the flight director never wavered until we passed directly over the azimuth antenna located at the departure end of the runway. At this point we started our missed approach for another approach.

"Now that you've seen the workings, let's simulate an approach using maximum offset to the right for a straight-in approach to runway 17."

Don set a 3.0° glide path and R-060 into the dual-MLS control panels. This would, in effect, bring us in close enough to the threshold of runway 17 to be considered lined up for a straight-in approach. And it worked as advertised. We passed right over the top of the threshold of 17 at our 200-foot AGL decision height.

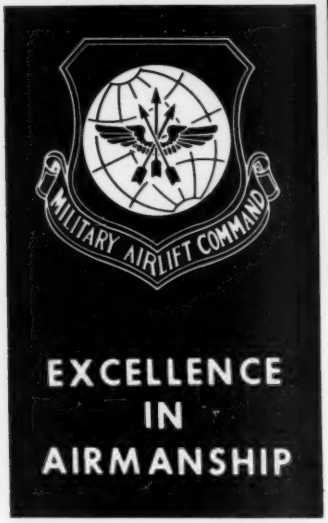
Two more approaches further demonstrated the versatility of the single MLS approach aid. These MLS approaches simulated circling approaches to the other runways, and we varied our elevation angle up to a maximum of 4.0°. I then asked what was the maximum angle at this facility. Don replied it was a 7.0° glide path maximum. After exchanging glances, he set in 07 in the "g/s" select window indicating a 7.0° glide slope, and R 000, meaning a straight-in approach.

At 10 miles out and 3,000 feet MSL, I configured with gear and full flaps and started slowing up to an approach speed of 120 knots. A quick mental calculation told me I should be looking for an initial descent rate of about 1,500 feet per minute. Intercepting the glide path at 7 nm, I picked up my preplanned descent rate. I had, however, forgotten about a slight 10-knot tailwind. My descent rate now began to look more like the proverbial screaming dive, as I eased the power levers back to almost flight idle and kept the nose over long enough to once again find the glide slope. The VVI pegged right at 2,000 feet per minute. The pitch steering bar somehow remained in the vicinity of the artificial airplane on the flight director and I managed to hold a semblance of my preplanned airspeed. Don, acting as copilot, called "100 feet above" and "decision height" almost simultaneously, and I leveled the hurtling Beechcraft at 200 feet AGL after an approach that seemed to take only a few seconds to complete. Had this been a real approach in real weather to a dirt strip in a Herk, it would have been a piece of cake, as long as there was an MLS in place.

The approach and landing back at DCA was anticlimatic, and we shut down the twin Pratt and Whitney PT-6s of the King Air in front of Hangar 6.

"Well, what did you think of the MLS?" asked Don, obviously very pleased over its performance.

"Not bad. Not bad at all," I remarked trying not to crack the sides of my face with my elation. "I just wished I had had an MLS at Normandy LZ back at Pope a few times."



Standing Left to Right: Capt Daniel Fraley, AC; Capt Michael Finnern, CP; 1Lt John Tappan, N. Kneeling Left to Right: TSgt Earl Laird, LM; SrA Brian Anderson, Crew Chief; SSgt William Dunnington, FE. Not Pictured: A1C Brett Roberts, Crew Chief.

Captain Fraley and crew, 345 TAS. Captain Daniel Fraley and his crew were preparing for a C-130 mission from Clark Air Base, Republic of the Philippines, to Yokota Air Base, Japan. With passengers and cargo already loaded, Captain Fraley received an urgent call from the Clark Command Post. A U.S. Navy EA-6B electronic warfare aircraft had crashed in rugged terrain approximately 9 miles west of Clark Air Base. The rescue HC-130 already at the crash site was running low on fuel and another C-130 was needed on the scene immediately.

The crew downloaded the cargo and passengers and were ready to go in just 11 minutes. Captain Fraley's aircraft, Kelly 55, lifted off soon thereafter. Despite no previous rescue experience, Captain Fraley and his crew assumed the task of coordinating the on-scene rescue effort, including the responsibilities of air traffic control at the crash site. After visually sighting the wreckage, Kelly 55 notified rescue control center of the exact coordinates so a restricted area around the site could be established.

During the rescue and extraction of the downed crewmembers, one rescue helicopter lost transmission fluid, but successfully made an autorotation into a small clearing. Kelly 55 coordinated assistance for this downed helicopter while keeping five other rescue helicopters maneuvering at the crash site clear of each other and other traffic.

During the rescue operation, two Marines performing a security function for the downed aircraft were injured. Captain Fraley's crew immediately located the injured Marines and coordinated their pickup. After 5½ hours of functioning as the on-site command, control and surveillance authority, Kelly 55 returned to Clark AB.

Captain Fraley and his crew were credited with four saves and two assists for this mission. Their professionalism in this completely unfamiliar mission and quick response to the demands of the emergency prevented further tragedy in an extremely hazardous air traffic environment. Their individual skill and collective professionalism prevented further loss of life and reduced potential damage and compromise of classified equipment. We salute their excellence in airmanship.

1Lt Carl Evans, IP.

First Lieutenant Carl D. Evans, 1550 FTS, was flying as an instructor pilot in a TH-1F at

the Kirtland AFB, New Mexico Auxiliary Field. The student pilot with him was flying a practice manual fuel approach to a slide landing. As the aircraft was on short final and descending to set up a slide landing, a beep switch decrease was made to compensate for lowering the collective. Noting a momentary rotor decay, the student attempted to correct it by increasing the beep switch. Realizing that the student was getting behind on rotor control, Lieutenant Evans took control of the aircraft and attempted to roll up the throttle (to return to automatic and out of manual), intending to go around for another approach. Upon movement of the throttle barely out of the flight idle position, the engine began a rapid, uncommanded acceleration towards maximum power. Lieutenant Evans pulled maximum collective to keep the rotor RPM within limits while continuously holding down the beep switch to get the engine back under control. Upon turning base-to-final, the engine finally began to decelerate, though very slowly. While setting up for a possible straight-ahead autorotation, Lieutenant Evans continued to decrease the beep switch, slowly rolling the throttle to full open. Realizing he had at least minimum power, he set up for a minimum power descent towards a slide landing area, using the limited power he had and making no further throttle or beep switch inputs. The aircraft touched down safely and slid approximately 60 feet to a full stop where the crew shut it down and egressed without incident. The rapid, correct, and totally professional actions taken by Lieutenant Evans during this critical inflight emergency prevented injury to the crew and possible damage to a valuable aircraft.

Lieutenant Colonel Richard C. Brenneman and crew, 86 MAS, were preparing their C-141B for a noon departure from King Salmon, Alaska, but "ops normal" ended when the crew showed at the aircraft. The problems started with an inoperative anti-skid. Since facilities for repair were not available at King Salmon, Lieutenant Colonel Brenneman elected to continue the mission without the anti-skid. The flight engineers recomputed the takeoff data accordingly and the mission continued.

Left to Right: TSgt James Harris II, FE; Lt Col Richard Brenneman, AC; Capt Donald Counts, CP; SSgt Marcos Rodriguez, LM. Not Pictured: SSgt Don McIntosh, FE; SSgt Michael Bouchard, ILM; SSgt Thomas Blocker, LM.

Following an uneventful takeoff, the elevator pitch trim failed. The crew was, however, able to restore the system to normal operation using the reset feature. Shortly after this malady, the crew noticed fuel venting overboard from the left wing. Due to the limited maintenance and fire fighting capabilities at King Salmon, Lieutenant Colonel Brenneman decided to divert to Elmendorf AFB instead and declared an inflight emergency. As the climbout continued, the aircraft began an uncontrolled rolling motion when the autopilot was engaged. Lieutenant Colonel Brenneman then disengaged the autopilot and flew the aircraft manually. The Starlifter would not respond normally, however, and he needed an unusual combination of rudder and aileron to control the aircraft's heading. Shortly after the aircraft was leveled at FL 310, the number 1 engine flamed out, further complicating the control problems. The crew adjusted power on the remaining three engines and decided to land at Anchorage International due to severe crosswinds at Elmendorf AFB. Because of the large aileron inputs required to maintain a constant heading, the crew was worried about the aircraft's controllability after touchdown and coordinated with approach control for a controllability check near the airport. When the controllability check revealed no further problems, they completed all checklists and briefings and prepared for landing. Following a long straight-in approach, the crew brought the ailing Starlifter in for an uneventful and safe landing. The quick response of the entire crew to the multiple emergencies clearly demonstrated "Excellence in Airmanship."

Direct Oceanic Communication

The North Atlantic Trial

by Wing Commander David F.L. Edwards, RAF
HQ MAC/Stan-Eval

Gander Oceanic clears MAC 60172 to destination via track delta to maintain Flight Level 330 and Mach .74." The dulcet tones of the Canadian radio operator flood the headset of the alert C-141B copilot. The right-seater immediately responds by reading back the clearance in full, giving each position which constitutes track delta. Shortly after the airlifter coasts out over the cold, gray North Atlantic Ocean, the operator's voice is heard again. "MAC 60172, contact Gander on HF primary 5673, secondary 2987. Report 50 West." The copilot faithfully acknowledges, tunes his number 1 HF set, and establishes contact on the assigned HF frequency. Turning to the number 2 HF set, the right-seater then selects Shannon VOLMET on 8833 and awaits the broadcast for Prestwick at 5 minutes past the next hour. Meanwhile he selects guard on UHF 1 and VHF 1. Having asked the flight engineer to temporarily monitor the HF frequencies, the copilot selects 126.7 on VHF 2 which allows him to listen in on the conversations between airline crews. You never know what kind of interesting information may come up! This right-seater's professional handling of inflight communications is commendable. Are you as confident in your ability on the radios (especially in the North Atlantic region)?

Since 1979, MAC has conducted an experiment within the North Atlantic airspace which requires all MAC aircraft to communicate directly with the Oceanic Control Center (OCC) via HF. This experiment came about as a result of several near-miss incidents in Gander Oceanic Control Area (OCA) back in 1979. Investigations identified poor air-ground communications as a factor, and recommended direct contact should be maintained with the OCC to provide more timely communication between aircraft and controllers. The trial initially applied to Gander, New York, and Santa Maria oceanic areas, but on 15 April 1982 was extended to include Shanwick. Prior to the start of this trial, MAC aircraft relayed air traffic control messages through the USAF aeronautical system. This service has served MAC extremely well over the years. However, reduced separation criteria within the North Atlantic Track System now requires direct communication with the OCC to ensure flight safety. This is not to suggest we are denigrating the USAF aeronautical system in any way. They will continue to fulfill the vitally important command and control function and handle all management messages and requests for weather information. Where appropriate, AIREP reports may also be passed. In airline parlance, this is a "company" service providing all communications services other than air traffic control.

(Editor's Note: Under the present North Atlantic HF communications trial of communicating directly with the OCC, position reports to the OCC should include an AIREP using the AF Form 72 format.)

Some of you may not understand how the civilian counterpart of the USAF aeronautical system functions. Under the International Civil Aviation Organization (ICAO) based in Montreal, Canada, each nation is responsible for providing air traffic control service, including supporting VHF and HF communications systems, for their area of responsibility. The HF system is global by nature and is made up of regions or nets of aeronautical stations.

In the North Atlantic (NAT) Region there are four "frequency families" listed in the ICAO NAT Regional Supplementary Procedures and designated as NAT A, B, C, and D. NAT A (again a group of frequencies) covers southern routes for all aircraft and encompasses Gander, Lisbon, New York, San Juan, Santa Maria, Shanwick, and Paramaribo. Nat B is for northern and central routes for aircraft registered to nations west of 30° W and includes Iceland, but not the southern stations. NAT C applies to aircraft belonging to nations east of 30° W, while NAT D is established for all aircraft operating outside the NAT structure. Confused? Figure 1 from the NAT Regional Supplementary Procedures indicates which NAT frequency family (A, B, C, and D) should be used when flying specific North Atlantic routes. The southern routes are those which enter the New York Oceanic or Santa Maria Oceanic flight information regions. The central and northern routes comprise all others in the North Atlantic region. MAC aircraft that are single-sideband equipped will normally use NAT family frequency A on southern routes, and B on northern and central routes. The proverbial exception is that all aircraft flying polar routes should normally use family D.

The radio frequencies for NAT A, B, C, and D, can usually be found in the DOD enroute supplements under a specific station name such as Gander International, Newfoundland. A suggestion has been made to have the DOD Flight Information Handbook contain complete global listings for the ICAO regions for the various frequencies currently operated by oceanic control centers.

As you may already have guessed, special communication procedures apply to flights crossing the North Atlantic, and all pilots and navigators should be familiar with these. If you're not familiar, refresh your memory from FLIP, Area Planning 2, Chapter 5. Your reputation (and MAC's) with the controlling authorities and other aircraft operators is at stake. For example, when requesting oceanic clearance from Shanwick use the correct format as follows:

a. Call sign.
b. OCA entry point and ETA.
c. Requested flight level and Mach number.
d. Any change to flight plan affecting OCA.

Nothing upsets the ground radio operators more than having to ask an aircraft for this information, and justifiably so, because they are busy people.

To improve pilot-controller response time, certain standardized ATS messages were introduced recently under the following headings:

a. Position report.
b. Request clearance.
c. Revised estimate.
d. Miscellaneous (e.g., SIGMET).

In order to enable ground stations to process messages in the shortest possible time, some guidelines were laid down. First, use the correct type of message, and state the type of message on initial contact. Second, adhere to the sequence laid down, and finally, express all times in hours and minutes. Thus, when our efficient copilot prepares for his 50° West call, he prefixes his call with the word "position" as in the following example:

"Gander, position, MAC 60172. 50N 50W at 0430, flight level 330. Estimating 50N 40W at 0510. Next 51N 30W." (According to ICAO, the word "position" may be said either immediately before or after the aircraft call sign—Ed.)

The same rule applies when requesting a level change or revising an estimate. Just remember to prefix the call with the key words "request clearance" or "revised estimate." Easy really, but you'd be surprised how many aircrews use

Designated for—	Route		
	Southern	Central	Northern*
SSB-equipped aircraft registered in the hemisphere West of 30° West.	A	B	B
SSB-equipped aircraft registered in the hemisphere East of 30° West.	A	C	C
All DSB-equipped aircraft.	A	D	D
**Note:* All aircraft flying polar routes should normally use Family D.			

Figure 1: Distribution of the NAT HF message traffic for users on NAT routes between the various HF Frequency Families.

nonstandard procedures and effectively slow up the service being provided to all airspace users.

Note: Once initial contact has been established on frequency, it is not necessary to call the station being worked prior to transmitting these standardized messages.

What does our professional copilot do when an emergency arises? It is not sufficient in international airspace to "declare an emergency." The seriousness of your situation will not receive the response it deserves unless you prefix your call with "Mayday" spoken three times, followed by the needed elements shown in the following example:

a. Mayday, Mayday, Mayday.
b. Name of station addressed.
c. Call sign.
d. Nature of distress condition.
e. Intention of person in command.
f. Present position, level, heading, fuel remaining and number on board.

In this case, let us assume a fire occurs in number 3 engine just after 50 West, and the structure continues to smoulder after the fire extinguishers have been fired. Our copilot, having monitored the aircraft commander's initiation of the turn-back procedure (you all know that from memory we hope!), smartly transmits on the primary HF frequency:

"Mayday, Mayday, Mayday, Gander this is MAC 60172, fire in number 3 engine, diverting to Gander. Position 50N 49W, descending to flight level 320, request flight level 310, heading 270 magnetic, fuel remaining, 6 hours, 70 persons on board, over." It is also advisable to broadcast your intentions on 121.5 and 243.0 so that any aircraft in your area can monitor your progress and take avoiding action if necessary. Of course, if circumstances do not permit this copy book action, use any means possible to attract attention to your plight. You might also consider calling for an escort aircraft.

Other oceanic regions around the world do not have such complex procedures, but the same basic rules apply, especially regarding use of ICAO-approved words and phrases. The copilot has only himself to blame if he fails to get the message across. Bear in mind that many HF radio operators are not necessarily fluent in the English language which, fortunately for us, happens to be the international language of the air. Use of nonstandard terminology can get you in plenty of trouble, leading at least to some embarrassment on your part for not doing the job properly. Try to eliminate "ums!" "ahs!" and "sirs!" from your vocabulary, and use ICAO-approved expressions.

In the near future we hope to expand our HF trial to include the Pacific region. Those of you who operate throughout Africa and the Indian Ocean regions should already be talking to the ICAO authorities. A guide to ICAO radio procedures is under consideration. Meanwhile those of you with access to Jeppesen will find all the information you need under the Radio Facilities and Air Traffic Control sections (beware of copyright infringements). We see no reason, however, why extracts should not be taken from the ICAO HF radio frequency charts for the world and included in the aircraft navigation kits. A little self-help in this area will fill the gap until the information is published in the DOD FLIP. We leave you with a final exhortation—communicate on the radios efficiently, effectively, and professionally, in a manner befitting a professional MAC member.

ABOUT THE AUTHOR

Wing Commander David F.L. Edwards is an RAF exchange officer serving in Headquarters MAC. He's a highly experienced instructor and evaluator pilot, with a background in transport operations. Prior to his current assignment, he commanded an RAF Transport and Support Helicopter Examining Unit. Wing Commander Edwards has over 6,000 accident-free flying hours in VC-10, C-130E/H/K, and Argosy aircraft and holds both the British ATP and FAA commercial licenses.

Honorable Mention, 1982 MAC Flying Safety Writing Contest

The Things They'd Learned

by Captain Jerry M. Brewton
64th Student Squadron
Reese AFB, Texas

"I do hate to brag," said Major McGee,
"But no flyer alive flies safer than me."
"Ah, and I hate to correct you," replied Light Colonel Guy,
"But I think that you meant, 'flies safer than I.' "
"Be it me, be it I; or be it me, be it you,
We've lots of safe hours between us, we two."
"Agreed," said the colonel, "we're two of the best.
We've flown lots of hours and passed lots of tests.
And your patch says '5,000,'—all accident-free.
But note the '10,000' on this patch worn by me.
And I've seen piles of wreckage where some crashed and burned.
I've watched their mistakes and from them I've learned."
(Now these two pilots weren't flying alone that night.
There was also a new guy there on his very first flight.
Lt. Deloach, a lad fresh out of school,
But in matters of safety, he was nobody's fool.
So he turned up the volume and cocked a keen ear;
If these two talked safety, he wanted to hear.)

The colonel leaned back and puffed on his pipe.
"Have you ever heard of the Gweehops from Gwipe?
Ah, Gwipe," sighed the colonel, "and all those poor Gweehops!
They drove all their trimotors into the treetops.
The lesson there, of course, is know your terrain,
So the earth can't rise up and shatter your plane.
And while down in Zangula," said the colonel, "I saw lots of Zorts.
For lacking in courtesy, they're the worst of all sorts.
For right-of-way rules, they simply don't care.
You're likely to meet them—somewhere in midair.
From them I learned, 'heads up—be alert.'
'See-and-avoid' is one secret of not getting hurt."

"MAC 6049, you have a good day,
You're cleared to 5,000 and call GCA."
"Roger, we copy, we're now out of 10,
Hometown control will guide us on in.
And Hometown control, we're passing through eight.
We'd like a straight-in so we won't have to wait."
"Unable 49, the weather down here is really sort of mean.
Hold zero-six-zero, between 10 and 15."

"Well, it looks like we've got a few minutes to burn.
I've told a few stories, now, Major, it's your turn."
"I once knew a chopper pilot named Dashin' Dan Dreedle.
He could fly under power lines like threading a needle.

We all knew he'd done it; he never denied it.
But he blacked out four cities the last time he tried it!

"MAC 6049, cleared ILS-Two.
Our final controller will be monitoring you.
Call outer marker and please check your gear.
Our viz is 2,000, sky totally obscure."

"Rock bottom minimums. Could be quite a test,
But like we've been sayin'—we're two of the best.
And I've flown this approach til I know it by heart,
We'll descend at 500 right from the start."
"Five hundred? Oh no. We'll have to use more,
I know, because I've flown here many times before."
"Well, I'm in command and we'll do what I say,"
"Left and above," came the voice from GCA.
"I told you 500 just wasn't enough,
This is an easy approach and you're making it tough.
Now why don't you descend about 650,
That's the number I use and it always works nifty."

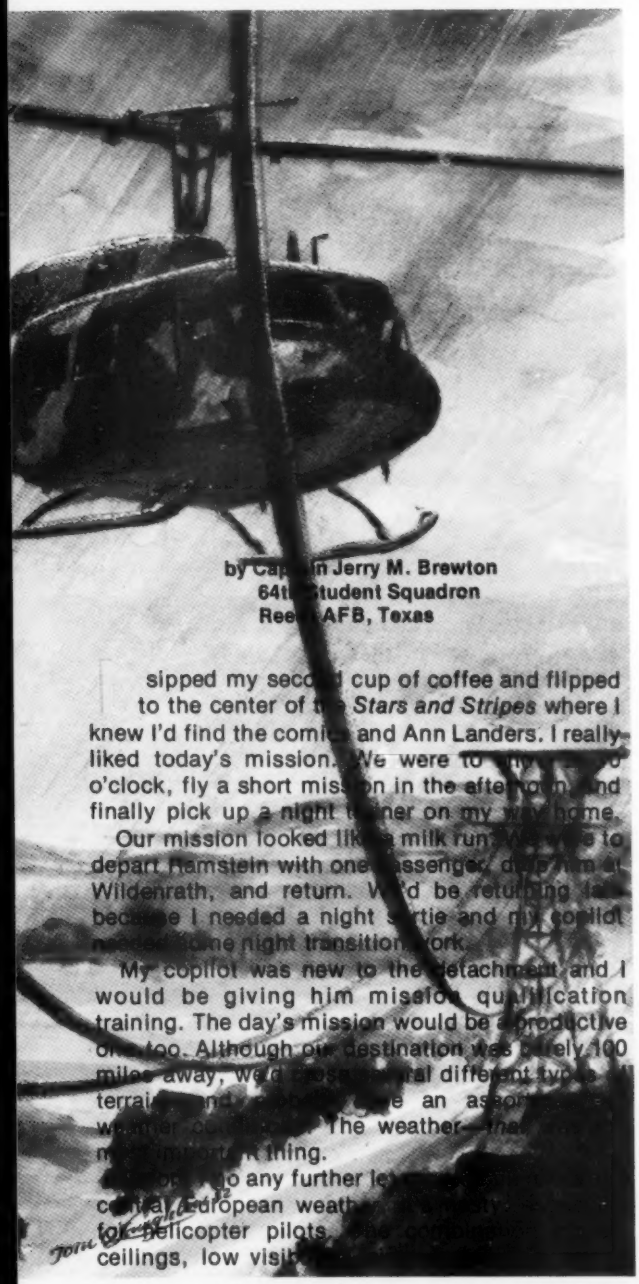
"You're on the glide slope—no you just went below it,
And you're still holding left. Does your CDI show it?"
"Six fifty's too much and I should've known it,
You're not the best pilot and now you have shown it."
From the rear, loud and clear, came the voice of Deloach,
"Go Around! You can't salvage this sloppy approach.
No one's called minimums which you're now going through,
And I see nothing resembling runway 02.
There's no sign of strobes, no sign of the tower,
So please ask those turbines for maximum power."

With throttles to maximum, they hoped they'd climb,
The decision to go around was certainly ill-timed.
The engines came in and started to wheeze,
From recently contacted Dutch Elm disease.
But luck had a good turn for this ill-fated crew,
Before them lay the threshold of runway 02,
And a branch from a pine had locked the gear down,
With a prayer and a flare, they were safe on the ground.
They sheared off the main gear and slid into the sod,
With the turbines still belching and spitting out FOD.
As Deloach looked forward, a sad sight to see,
Thousands of hours—no longer accident-free.

He'd forget their experience and the things that they'd done,
And remember the accident, since it only takes one.
With all that experience he'd thought that they knew,
The one secret of safety is to fly as a crew.
Brief all the procedures and plan well ahead,
Because safety's in what's done, and not in what's said.

Bad Habits — Not Tricks of the Trade

A helicopter IP learns a lesson in instruction.



by Captain Jerry M. Brewton
64th Student Squadron
Reese AFB, Texas

I sipped my second cup of coffee and flipped to the center of the *Stars and Stripes* where I knew I'd find the comics and Ann Landers. I really liked today's mission. We were to fly at 10 o'clock, fly a short mission in the afternoon, and finally pick up a night trainer on my way home.

Our mission looked like a milk run. We were to depart Ramstein with one passenger, drop him at Wildenrath, and return. We'd be returning late because I needed a night sortie and my copilot needed some night transition work.

My copilot was new to the detachment, and I would be giving him mission qualification training. The day's mission would be a productive one, too. Although our destination was barely 100 miles away, we'd be flying several different types of terrain and would encounter an assortment of weather conditions. The weather—that most important thing.

I'm not going to any further lengths to describe central European weather conditions for helicopter pilots. The combination of ceilings, low visibility, freezing drizzle, and thick haze make the flying downright treacherous. The only thing I haven't seen on a German weather sheet is blowing dust. To make matters worse, the weather changes rapidly. Anyway, when I arrived at the detachment Lieutenant Jones was waiting.

"Morning sir, think we'll be able to get off today?"

"Don't call me 'sir,' it makes me feel old," I scolded the kid teasingly. "Let's check the weather."

The weather forecast didn't look too bad. Ramstein was 800 feet and 3 miles and Wildenrath was 2,000 feet and 5 miles plus. There were isolated thunderstorms and occasional rain showers with gusty surface winds. I figured this was a good time to show him one of the tricks of the trade I'd learned in my 2 years at Ramstein. I turned to the weather forecaster. "Hey, Joe, what's the current observation out of Hahn?" While waiting for the latest weather report, I explained my reasoning. "Hahn is about 800 feet higher than Ramstein. It's also right along our route. If they're down, we'll reroute our flight across some lower terrain."

"Hahn is presently 500 feet and 2 miles. They've got an intermittent 300 feet and 1 mile on their forecast."

"That's not too good," I reasoned, "but it's good enough to give it a try. Let's go file our flight plan."

Before leaving base ops I made sure that we checked the notams for all the airfields along our route of flight. I explained to Jones that if we needed to land at one of those places, having the current notam information could come in handy. He seemed impressed by my caution. It was just another trick of the trade that had come in handy in the past. As I filed I noticed Jones checking the Rhine valley on the terrain chart and comparing it with a line he had drawn on a strip map. I thought back a couple of years to the time when I, too, had made strip maps. But just as I'd learned to do without them, I knew Lieutenant

Honorable Mention, 1982 MAC Flying Safety Writing Contest

DUE TO A LACK OF PHOTOGRAPHIC CONTRAST BETWEEN TEXT AND BACKGROUND, THIS PAGE DID NOT REPRODUCE WELL.

Jones would learn also, especially if I could teach him a few tricks which made strip maps unnecessary. Upon reaching the helipad, we found our helicopter was ready so we completed a quick preflight. Our passenger was right on time and we were airborne at 1330. Fifteen minutes after that, the weather began to deteriorate.

"I was afraid of this," I said. "Hahn's weather is never as good as forecast. The enroute supplement even has a warning about that." We still had good VFR conditions but the hilltops ahead of us were in the clouds. "Put Pferdsfeld in the tacan and tune Pferdsfeld tower on UHF, copilot. Looks like we'll have to do a little diverting." While Jones was following my instructions I explained what I was doing. "Pferdsfeld is east of Hahn. It's also lower. There's a valley about 6 miles south of the field, and if we can get there, it'll take us out to the Rhine valley. From there we'll have a much higher ceiling to work with."

We found the valley but it didn't help. I thought about turning back for Ramstein, but I knew if we could work our way down out of the hills we'd be okay. I wanted to show Jones how to cope with the low ceilings. (Looking back on it, all I wanted to do was to show him I knew all of the tricks.)

I called Pferdsfeld tower and requested a special VFR clearance to transit the control zone. Tower advised us that the ceiling was down to 200-feet and visibility was 2,000-meters with light rain. Not much for VFR, but with thunderstorms on the forecast we didn't have an IFR option. Also, the valley we were in had narrowed to a point we didn't have enough room to turn safely. Luck was with us, though, and up ahead I could see the valley widening and the terrain dropping off sharply. In a couple of minutes we were looking at a 5,000-foot ceiling and 5 miles visibility. "Sometimes things get a little tight when you're sneaking down the valleys," I said.

We turned out of the valley and headed for Wildenrath. I decided to show Jones a few more tricks which he would find useful in the years ahead. "We're coming into a high traffic area. There's always lots of low-level, fast moving aircraft around here. The safest thing for us to do is get radar coverage from the military controllers. They'll tell us where every target is located. They'll also provide traffic separation and vectors if we request it."

"Sounds like a good idea." Jones said. "Who do we call?"

"Clutch radar," I said. "They're in the book."

Clutch radar vectored us around all the traffic and the flight into Wildenrath was like a Sunday drive. In spite of the low ceilings and valley flying, we got our passenger there only 5 minutes past his scheduled arrival time. We'd planned to stay on the ground at Wildenrath until just before sundown so we could get the max amount of night time while flying home, but I decided to check the weather and make sure that was still a good idea. We could always fly back to Ramstein, land, and takeoff again after it got dark. When we arrived at the weather shop, the forecaster did not have good news.

"Hahn radar is reporting a line of thunderstorms extending from Hahn northeast to Mendig. Quite a few rain showers and some low stratus in the hills."

"Well Jones, we won't go back the same way we came up. Maybe we can go around to the west." I tried to figure a route that would keep us well away from the bad weather. "Could you get me a forecast for Bitburg and Spangdahlem?" I asked.

There ought to be some—

WIRES! PULL UP!

We soon had a forecast for our new routing, and it was better than 1,000 feet and 3 miles all the way. There was a chance of some scattered stratus around 500 feet, however. In less than an hour we were on our way back to Ramstein.

"Wish we had weather radar," Jones said. "Those clouds look pretty dark." And so they did. It looked as if a line of thunderstorms had developed in front of us. Time for another trick. I then explained that the surveillance radar at Norvenich had given me weather advisories on many previous occasions. We gave them a call. They were helpful, but not encouraging.

"You've got some heavy buildups about 20 miles directly in front of you," the controller informed. "By the way, did you know that your transponder is inoperative?"

"Can we go west toward Bitburg?"

"I'm not painting anything in that direction at the present time. These cells have been building all around, though."

So, we headed toward Bitburg and for a while it looked good. Then things began to go wrong. First, the scattered stratus turned out to be at about 100 feet instead of 500. Next, we encountered moderate rain that cut our visibility to less than a mile. Navigation became next to

impossible and we had to descend so low that we broke lock on Bitburg tacan. I decided to reverse course and return to Norvenich until things got better, but I'd waited too long. Down below there was nothing but trees which ruled out the landing option. Then I saw it—a sucker hole. An opening through which I could see some blue.

"Going up," I said as I pulled the collective. This was one of Captain Carson's old tricks. "If you don't like what you see on bottoms, try the top," he'd told me. At 4,000 feet we were above most of the stratus. Visibility was good, but that was all. A few miles to our left was a wall of clouds that towered thousands of feet above the stratus layer. Thunderstorms! Ahead and to our right others were building. We had to get down and fast. I checked my tacan. Buschel was too far to the left and there was probably a thunderstorm in progress. The Spangdahlem tacan also was out. Bitburg was 18 miles in front of and slightly right of our nose. Jones came to the rescue.

"Hey I can see the ground over here."

The hole wasn't nearly as big as the one that we'd climbed up through. In fact it wasn't much more than a thin spot in the clouds. "Going down," I said. Bottom the collective, crack the throttles, kick right pedal, and you'll fall like a brick. We did. We broke out under the same low stratus we'd had before. But again we were lucky. "There's a railroad." Jones pointed.

"Looks like we've got it made." I knew that the railroad was in a valley and the valley would take us right to Bitburg. "Sometimes you have to get pretty low, but as you can see we've got plenty of room to maneuver and the visibility is not bad at all. Also it's easy to find checkpoints as long as you stay oriented. Look, right here is a railroad bridge and a little farther up ahead there ought to be some—WIRES! PULL UP! The engineer hadn't even keyed the intercom. But we heard him—loud and clear!

I pulled back for all I was worth and we barely cleared the power lines. I was sure they'd hook the skids when they passed the chin bubble. We spent the next few miles nervously looking outside for more wires until we landed at Bitburg.

"We're finished for the day! I'll debrief this back at Ramstein," I told Jones as we left the helicopter pad and headed for the BOQ. And it would be a long debriefing. After a few more missions Jones would realize just how dumb some of the things I'd done were. The very same things I thought were dumb when I was a new copilot. But I'd seen someone else do them. They'd taught me all the tricks. Some of them were good, like knowing who to call for radar service, or how to get the best weather information. The importance of checking enroute notams and even how to work your way down a valley or use a suckerhole *if you have to* were good to know. But they used these tricks as routine and I was following right along. If I didn't change, Jones and all the other new guys would follow in my footsteps. I was teaching Jones to do dangerous things.

Tomorrow would be different. There would be no more taking chances. No more calling safety violations "tricks of the trade." Tomorrow we'd spend a lot of time talking about what we shouldn't have done today. Overhead I could see a star behind the broken cloud deck. Maybe we should have pressed on home tonight I thought. Then I turned and looked toward Ramstein. Lightning!

ABOUT THE AUTHOR

A native of Texas, Captain Brewton graduated from the University of Houston in 1970 completing OTS the same year. An IP with over 2,000 hours of light lift time, Captain Brewton has flown HH-43s, UH-1Fs, and HH-1Hs. Prior to his assignment as a fixed-wing student pilot at Reese AFB, he was a member of Detachment 2, 67 ARRS at Ramstein AB, Germany. Captain Brewton was a first place winner in 1980 and received an Honorable Mention in 1976, 1979, and 1981 writing contests.

The National Air and Space Museum

by Captain Gale E. Clouse, Jr.
Associate Editor

Imagine yourself during those last few moments of descent as you're about to touch down in a field near Misery, France, 60 miles northwest of Paris. One hundred thirty-seven hours and 30 minutes have elapsed since liftoff. Your moment of triumph is near as you see hundreds of people scurrying across the ground to greet you. Touchdown finally occurs in a soft but solid bump and the swarms of people gather around to meet and congratulate you. No, you're not Charles Lindbergh and it's not 1927. You're one of the three *Double Eagle II* crewmembers and you've just completed the first crossing of the Atlantic Ocean by balloon. The day is August 17, 1978.

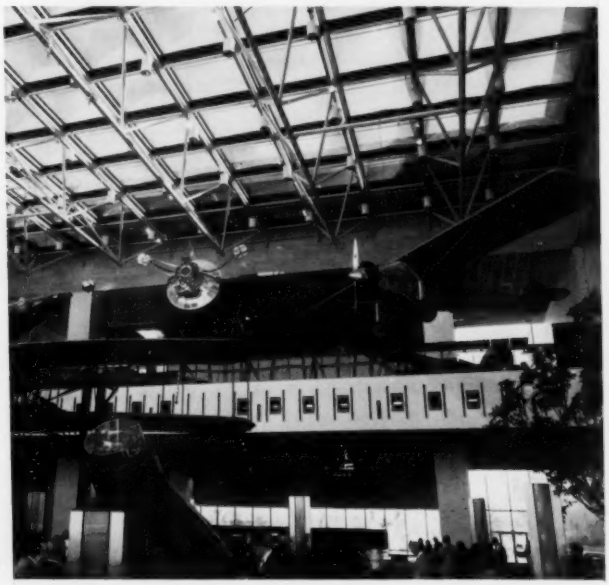
The exploits of the *Double Eagle II* crew as well as a dazzling array of flying machines and spacecraft are just some of the features of the National Air and Space Museum located at 6th and Independence Avenues in Washington, D.C. The museum, through its vast collection of flying machines, and other hardware, documents most of the major achievements—both historical and technological—of air and space flight.

Robert Hotz, former editor of *Aviation Week*, has called the museum "Washington's smash hit" and the "crown jewel of Washington's glittering Museum Mall." It's certainly one of the most popular attractions in Washington with an average attendance of 10 million people a year. The museum also provides a number of amenities for its visitors including year round operation, free admission, public tours, underground parking, museum and spacearium shops, cafeteria, a large research library, and services for the handicapped.

One of the major features of the museum is a 486-seat theater with a giant screen, 15 meters high and 23 meters wide (five stories). "To Fly," a bird's eye view of America, and "Forbidden Planet," an aerial tour over five continents, are two of the features shown. The third film, "Flyer," which opened in August 1982, is about the exploits of a fictional American pilot, Kyle Murphy. The IMAX motion picture projection system provides high quality images and really does give you the impression of "being there."

You won't want to miss "New Eyes on the Universe," a multi-media presentation shown in the museum's Albert Einstein Spacearium. In this planetarium show you can see exploding stars, remnants of pulsars, and quasars as well as take a thrilling journey into the far reaches of space.

If your time is limited (and isn't it always), be sure to see as many of the original aircraft and spacecraft as possible. The Wright Brothers' *1903 Flyer* is located in the Milestones of Flight gallery. It's the original "flying machine" that flew at Kitty Hawk, North Carolina, on December 17, 1903, in the first man-carrying, powered flight. You'll also want to see the *Bleriot XI* (Pronounced Blaré-o) monoplane that won the $5,000 prize offered by the London *Daily Mail* to the first person to fly



across the English channel. And of course, be sure to see Charles Lindbergh's plane, the Ryan NYP, otherwise known as the *Spirit of St. Louis.* In case you weren't around back then, Lindbergh made the first solo crossing of the Atlantic Ocean in that single-engine monoplane on May 20-21, 1927.

Original space vehicles at the museum include *Freedom 7, Friendship 7,* and the Apollo 11 command module, *Columbia.* In *Freedom 7,* Navy Commander Alan B. Shephard, Jr. flew the first U.S. manned space mission on May 5, 1961, when he flew a 15-minute suborbital flight into space. In *Friendship 7,* Marine Corps Lieutenant Colonel (now Senator) John H. Glenn, Jr. became the first American to orbit the earth on February 20, 1962. On that date he completed a 3-orbit flight in 4 hours and 55 minutes. Man's flight to the moon is represented with the *Columbia,* the Apollo 11 command module. In it, astronauts Neil Armstrong, Edwin E. (Buzz) Aldrin, Jr. and Michael Collins flew to the moon and back, July 16-24, 1969. And it was on this memorable flight that Armstrong and Aldrin became the first and second men, respectively, to walk on the moon.

Another major original aircraft on display is the *Gossamer Condor.* Pilot Bryan Allen took off on August 23, 1977, from Shafter, California , at 7:30

Far Left: Milestones of Flight Gallery contains Lindbergh's *"Spirit of St Louis,"* the Apollo 11 command module *"Columbia,"* and the 1903 Wright Brother's *Flyer.* Top Center: Hall of Air Transportation shows a variety of transport aircraft including a DC-3 (top) and DC-7 flagship *Vermont* . Left: *Double Eagle II* balloon gondola from first successful crossing of Atlantic by balloon.
Photos by Smithsonian. Top Right: *Gossamer Condor* aircraft that won Kremer Prize for sustained, maneuverable, man-powered flight. Above, NTSB Safety Exhibit. Top Right and Above photos by Capt Gene Clouse.

Top: Mercury Capsule *Freedom 7.* Center: The Apollo-Soyuz Test Project made its historic rendezvous on July 15, 1975 when the Apollo and Soyuz vehicles linked up. This display shows the two vehicles docked together. Above: Military Air Transport exhibit at museum. Photos by Capt Gene Clouse.

a.m. and landed 7 minutes, 27.5 seconds later in this man-powered aircraft. His flight successfully fulfilled the requirements to win the $95,000 Kremer Prize for sustained, maneuverable man-powered flight.

There are 23 different areas and 200,000 square feet of exhibit space in the museum. Specialized galleries that may be of interest to *TMF* readers include World War II aviation, Sea-Air Operations, and Vertical Flight. The World War II gallery is chock full of vintage aircraft including a Supermarine Spitfire Mk. VII, a Mitsubishi A6M5 Zero Model 52, a North American P-51D Mustang, a Messerschmitt Bf-109 and an Italian Macchi C.202 Folgore (Lightning). In the Sea-Air Operations gallery, visitors can "witness" landings and takeoffs with surprising realism. The Kellet XO-60 autogiro and Igor Sikorsky's XR-4 (prototype of the first production helicopter), stand in the Vertical Flight gallery.

Two special exhibits currently featured include: "Jacqueline Cochran—World Record Holder" and "25 Years of Space Exploration." Jacqueline Cochran was the famous director of the Women Airforce Service Pilots, better known as WASPs, during World War II. Setting numerous flying records, she won 14 Harmon trophies for the outstanding female pilot of year. At the time of her death in 1980, Jackie Cochran held more speed, altitude, and distance records than any other pilot, male or female, in aviation history. The exhibit, "25 Years of Space Exploration," is a 45-minute self-guided tour of the space collection. Its scenes include views of the first satellites, experiments with the early rockets, a look at the explorations of the moon, Venus, Mars, Jupiter and Saturn. Although the lines might be a little long, you'll also want to walk through the Skylab orbital workshop.

From aerospace art and advanced cockpit simulations, to engines, propellers, and uniforms; from instruments and flight equipment to insignia, the National Air and Space Museum offers a very special repository of history that both entertains and informs.

Visitors who can get advance reservations should consider visiting the Paul E. Garber Preservation, Restoration, and Storage Facility in Suitland, Maryland. The Garber Facility enables enthusiasts to view over 100 air and spacecraft from the Smithsonian's reserve collection.

As you first imagined yourselves part of the *Double Eagle II* crew, the National Air and Space Museum allows all who visit to take flights of fantasy through the air, into space, and even to the stars. It offers visitors a chance to learn of man's efforts to conquer his earthly limitations as well as visualize his hopes and dreams for the future. You even learn how man has started to use safety consciousness to accomplish his exploits and make them "routine." If you have the opportunity, take the time and visit this "gem" of a museum for your very own "flight."

Flight Lines

City of Ardmore

Reference "The Legend Lives On," December 81 *TMF*. Although I don't know the tail number of the first C-130 delivered to the Air Force, I seriously doubt the City of Ardmore was the first or that the date was 9 December 1956.

Brian H. Shorb
Major, USAF
NGB/LGM Maintenance Staff Officer

***The date 9 December 1956 refers to the first C-130As delivered to a TAC operational squadron at Ardmore AFB, Oklahoma (463d Troop Carrier Wing). The City of Ardmore, Lockheed serial number 3050, Air Force tail number 5023, was the first to arrive at Ardmore. Our photo caption mistakenly identifies this aircraft as the first C-130. The first C-130 was a prototype YC-130 Hercules (AF serial number 33397) that made its first flight on August 23, 1954.**

Starlifter Crew Entrance Door

About your cover photo on the Jan 82 issue, I think 1Lt Tyler, MAC/PA, was testing to see if good MAC crewmembers would notice the C-141B had new escape hatches on the *right* side, two overhead hatches and a new crew entrance door. But maybe Lt Tyler had his negative backwards when the picture was printed. See ya around the friendly MAC Skies.

Dale C. Ferguson, MSgt.
40th Aeromedical Evaluation Squadron
McChord AFB, Washington

***Unfortunately, Lieutenant Tyler was not testing MAC crewmembers. He gave us the picture correctly printed. We, on the other hand, wanted to flop the picture to make it go east to west, (or is that north to south?) instead of west to east. When we did that, we also forgot to touch-out the lines. The very first person to point out our mistake was a sharp-eyed Canadian Forces officer TDY at Scott. How embarrassing!**

Need to Know/Nice to Know

Will you please forward my congratulations to Lt Col Casson for his superb discussion in your Feb 1982 issue, "Need to Know/Nice to Know," on the differential niceties between those things that aviation-type people *ought* to know and those things they *must* know. He has prepared an excellent article in a subject area that really forms the basis for publications like yours (and mine). When a command safety magazine (or a contractor support magazine) publishes ops or maintenance data, the reader can usually assume there has been an event-filled history preceding publication. In other words, reading it in *TMF* (or *PSD*—the McDonnell Aircraft Company product support magazine) is presumptive evidence of a "need to know," as Col Casson defines it!

It's interesting to me that another page of your Feb issue lists the names and numerous long-time flyers. (We do the same for Phantom, Eagle and Harrier Pilots.) I would guess there is a good correlation between your readership and those names (just as I *know* the correlation exists over here, (McDonnell-Douglas in St. Louis) in the fighter/attack world.

Nade O. Peters, Editor
Product Support Digest
McDonnell Aircraft Company
St. Louis, Missouri

***Thanks for your comments. Lt Col Casson has written many articles for *TMF* over the years and he always seems to come up with a different, yet always interesting way to hit the spot. You'd never know he spends his spare time as a B-747 instructor, would you?**

TMF appreciates each and every piece of mail we receive. If you have any comments about any article or topic of flying safety, please write and tell us. Our address is: Editor, *The MAC Flyer*
HQ MAC/IGFE
Scott AFB, Illinois 62225

Physiological Training

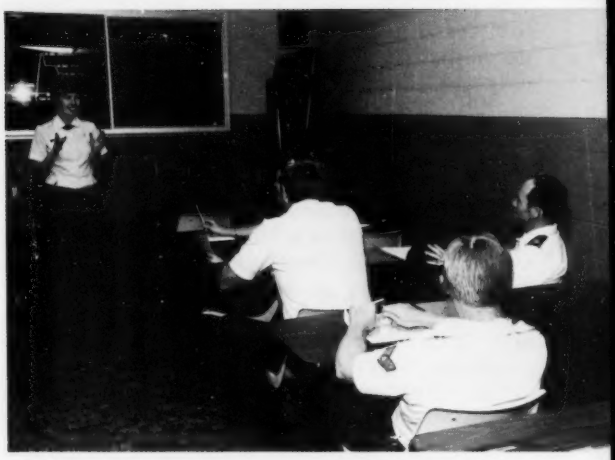
A Refresher

by Captain Gale E. Clouse, Jr.
Associate Editor

Your call sign is Alpha Mike 02 and you'll be under the control of Washington center." The monotone voice on the interphone now directs you to make a standard rate climbing turn at 500 feet per minute. Yes, you're about to take a short journey. (No, Rod Serling-breath, you're not going to visit *The Twilight Zone*.) In fact, you're in the spatial disorientation flight simulator also known as "vertigon" at Little Rock AFB, during a short physiological training update—the one required every 3 years.

The simulator you're seated in is a fully enclosed cockpit with no outside visual references. None! In fact this enclosure (which you can realistically think of as a throwback to a medieval-vintage "iron maiden") is mounted on a platform that rotates the simulator at 15 revolutions per minute. As long as your head doesn't move, you won't feel the rotational effects of the machine. But once you combine the continuously rotating enclosure with even the slightest head movement, you'll see why this machine would have been at home in the Spanish Inquisition. The Hitchcock-like voice of the narrator directs you to perform a series of flight maneuvers requiring certain ill-timed, ill-planned head movements which produce a vestibular disturbance (spatial disorientation). Many pilots and navigators experience vertigo when they reach down to change the code on the transponder in this beast which, by the way, is located at the *bottom* of the center console. So, the obvious question arises, why do it at all?

Captain Robert Zdendk prepares to ride the spatial disorientation demonstrator, "vertigon," designed to familiarize crews with the dangers of coriolis illusion.



1Lt Susan Richardson discusses psycho-physiological problems in flying to students attending the Little Rock AFB training.

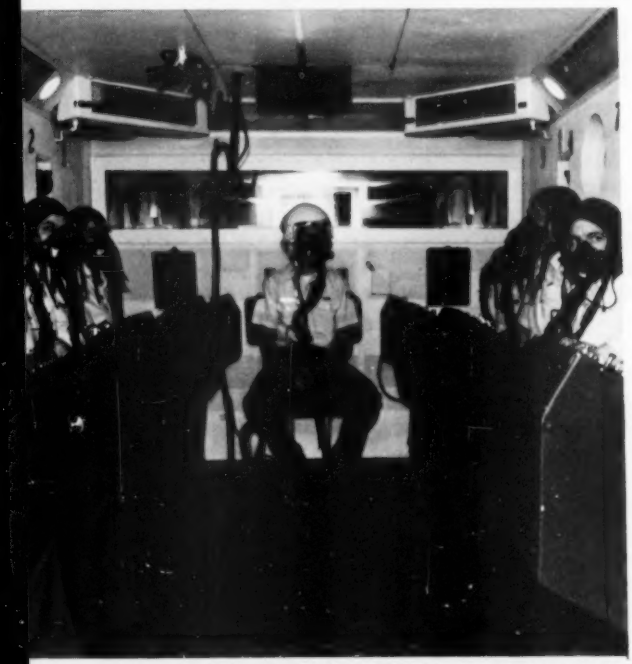
Well, experiencing "vertigo" in the simulator is much safer than getting a taste of it on an operational approach in IMC conditions. The sensation that your aircraft is making changes in attitude when, in fact, it is not, can lead you to disastrous consequences. Learning to deal with it in a controlled environment will pay off handsomely when you get it for real. You can overcome vertigo or spatial disorientation by (1) getting on instruments, (2) believing the instruments, (3) minimizing head movements, (4) flying straight-and-level, and (5) transferring control to another pilot. But that's just one part of the tri-annual refresher course.

In addition to the spatial disorientation simulator, refresher physiological training consists of 4 hours of academics and an hour and 10 minute altitude chamber flight. The academics portion includes discussions of hypoxia,

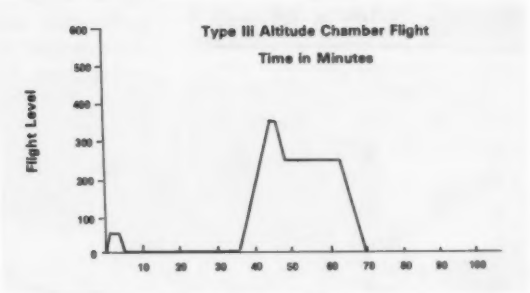
SSgt Wendell Geiger, outside observer (left), and 1Lt Susan Richardson, PTO (right), monitor crewmembers inside the chamber.

hyperventilation, trapped gases, decompression sickness, human factors, noise, and spatial disorientation. First Lieutenant Susan Richardson, physiological training instructor, also made favorable mention of MAC's AWTH (Accident Waiting To Happen) program with its focus on human factors in accident prevention.

During the chamber flight, you practice the use of oxygen equipment and pressure breathing that you talked about while in the classroom. You also experience hypoxia symptoms and the mechanical effects of pressure changes. We



A1C Randy Williams (center) monitors chamber flight from inside. *TMF* Associate Editor is located at position number 2. All photos by A1C Stan Tarver.



prebreathed 100 percent oxygen for 30 minutes prior to our ascent to FL 350 where we tried pressure breathing using various regulator settings. After descending to FL 250 we were paired with the person sitting beside us. We then removed our oxygen masks while our partners observed. Students experienced several hypoxia symptoms including: headache, dizziness, euphoria, and hot and cold flashes. After we noted our individual symptoms, we reconnected our oxygen masks and continued the flight descending to ground level. A rapid decompression to FL 220 completed the training for the day.

Altitude Reference Chart

Altitude	Important Facts
FL 350-FL 410	One pilot must be using supplemental oxygen or have it immediately available. Supplemental oxygen must be immediately/readily available.
FL 350	Post-rapid decompression time of useful consciousness (TUC) is approximately 15 seconds.
FL 250	a. Maximum cabin altitude. b. Critical altitude for hypoxia. c. Post-rapid decompression TUC is approximately 90 seconds.
FL 180	a. One-half of the atmosphere has been removed. b. Post-rapid decompression TUC is approximately 10 minutes or less.
10,000 Feet	a. Most ear and sinus blocks occur from 10,000 feet to ground level because the greatest pressure change occurs in this range. b. Supplemental oxygen is required above 10,000 feet to maintain normal functions in unpressurized aircraft.

Chart courtesy 1099th Physiological Training Flight, Andrews AFB.

The refresher physiological training provided by the friendly folks at the Aerospace Physiological Training Unit at Little Rock was extremely thorough. We had experienced "hands-on" training in both a flight simulator and in an altitude chamber. We all hoped we'd never experience hypoxia, hyperventilation or spatial disorientation "just like it happened in the chamber and simulator."

Mishap with a Moral

Beware the dangers of . . .

Complacency!

by Major Don S. Bowers, Jr.
HQ MAC/Current Operations

Have you ever been in an airplane accident? Not your run-of-the-mill, gear-up landing or sheet-metal fender-bender. I mean a real white-knuckle, ride-it-all-the-way in, turn-it-into-tinfoil accident. The kind of accident I'm talking about is the kind where, after looking at the pictures, you wonder not *if* people were killed, but *how many*? Better yet, have you ever been at least somewhat responsible for something similar and walked away to tell the tale? Well, I have. It's taken me a couple of years to have the nerve to talk about it in public, but here goes. It all started on a crisp, clear Alaskan February morning.

A few friends and I decided to go boonie-hopping in our ski-equipped bug-smashers. Although we all flew C-130s for a living, we fancied ourselves to be at least passable light-plane bush pilots. There isn't anything more exciting to such a footloose crowd than a sunny winter weekend after a fresh snow, when the whole world is a landing field for ski-planes.

After preheating our planes and waiting for an early-morning fog to burn off, we worked our way north from Anchorage toward Mt. McKinley, landing on a half dozen inviting, impromptu "airstrips." Some of these locations were more than a little hairy, such as a snow-covered, ravine-crossed gravel bar in a river at the foot of Mt. McKinley, and a sloping, snowy 4,000-foot-high bench on the side of a mountain. We had no problems, however, negotiating any of these hazardous landing areas, mainly because we were very careful, almost to the point of cowardice. In fact, the higher the "pucker factor," the more consciously cautious we became. The result: we completed our impromptu trip without so much as a scratched ski and headed for our normal end-of-mission rendezvous at a friend's airstrip north of Anchorage.

This particular landing field (where we would rehash the day's events over a hot cup of coffee) was about 2,600 feet long, plowed to a width of maybe 40 feet. It was bordered on both sides by tall trees which screened the runway from the wind in almost any weather. The surface was packed with snow and ice, which in itself presented no particular problem, but made for a longer-than-normal landing "slide" on skis and encouraged a slow-speed touchdown as close to the threshold as possible.

We had all landed there dozens of times,both on wheels and skis and no one—least of all me—gave much thought to the mechanics of this last landing of the day. We executed our usual mass-gaggle approach and I wound up number two on final, about a half mile behind number one. Since the old Luscombe 8A ahead was going to have to turn around and back taxi to the mid-field hangar after landing, I started slowing down my Cessna 170 (also a vintage 1959 tail-dragger) to gain a little more breathing room.

I didn't think too much about airspeed as I dropped full flaps (which roughly equate to barn doors on a Cessna 170). I could see that there was a 10 to 15 knot headwind moving the tops of the trees as I slowed even more—to around 50 knots—to set up for a right-on-the-numbers touchdown. This was pretty much standard procedure for a ski landing, and I had done

it several times already that afternoon, in more dangerous places.

As I concentrated on a pinpoint landing, I unconsciously let the airspeed slip to 45, then to 40 knots. This was still no problem, since the old Cessna had high-lift wingtips which kept it controllable down to ridiculously low airspeeds. Without realizing it, I also continued to add power until I was in an extreme slow-flight condition less than 200 feet above the ground.

At about 100 feet and a quarter mile out, I suddenly entered the wind "shadow" behind the trees lining the runway. With no warning at all, the airplane suddenly broke down and to the right, as if possessed. I got a quick glimpse of the airspeed indicator bouncing off zero and then my windscreen was filled with the snow-covered swamp off the approach end of the runway. I did remember to add full power and shove the nose down, but this was almost academic, since I already had a goodly amount of power and the nose was already at least 50° nose down with no urging from me.

Needless to say, impact with the ground (or rather with the snow) occurred promptly, and the airplane came to rest 270° away from the final approach heading, somewhat the worse for wear. Surprisingly, I only had a few cuts and was able to remember to turn off the ignition (fuel was leaking everywhere) before I crawled out of what was left of the pilot's door and floundered away through the waist-deep snow. The Cessna, naturally, was little more than a shiny pile of aircraft-grade Reynolds wrap. I had rapidly become a much sadder but wiser pilot.

What happened—and why? The probable cause, according to the friendly FAA representative with whom I had some heartfelt discussions after the fact, was "failure to maintain flying airspeed." What this means is this: I got low and slow on final and then hit a 15-knot headwind-to-tailwind wind shear, resulting in a classic stall-spin accident. Contributing to this misery was an airspeed indicator, inaccurate at low speeds (a chronic problem in light planes, I found out later). I also did not understand the full-flap, power-on stall characteristics of a Cessna, despite my 400 hours in my airplane (and another 3,000 in C-130s).

During the surprisingly low-key follow-up FAA checkride (in a rented 172), the examiner asked me to try and duplicate the crash conditions, at altitude. To my astonishment, the full-flap power-on stall was positively violent, with hardly any warning, and at a higher indicated airspeed than I would have expected. After I had recovered the airplane (and my composure), the examiner admitted that I was one of the few people he had ever met who could claim to have walked away from this type of accident, which he said was, and still is, one of the major causes of fatal light-plane mishaps.

My windscreen was filled with a snow-covered swamp!

As for the why of it all, the reasons are several, all equally preventable. First, I failed to remember that the trees which sheltered the field sometimes created a wind shear on short final with a wind from the north. Second, I placed too much trust in my airspeed indicator, which was never intended to be used at such slow speeds and which was reading perhaps as much as 10 knots high. Third, I had become so comfortable in my trusty old Cessna I had overlooked its darker side, forgetting that its easy controllability at low speeds masked a sudden and violent full-flap, power-on stall. Fourth, I was so intent on the landing I let the airspeed drop off to only a few knots above stall speed. Normally (with no wind shear) this wouldn't have made any difference. But when I hit the wind shadow behind the trees, my 5-knot margin turned instantly into a 10-knot deficit and the airplane, following the immutable laws of aerodynamics, turned into a one-ton brick.

The underlying reason for the crash was the fact I had allowed myself to become complacent. I was making a perfectly ordinary approach,in beautiful weather to a field I'd been into a hundred - times. Herein hangs the tale, as they say. Ninety-nine times out of a hundred, you can forget everything but your name and never have to pay the piper (or Cessna or Lockheed, for that matter). But sooner or later, and maybe when you least expect it, that one last percent may come due. Whether in a light plane or a "heavy," complacency is a killer.

NOTE: The author, Major Don S. Bowers, Jr., is a longtime C-130 instructor pilot currently assigned to Headquarters MAC, Current Operations. He has since acquired another Cessna 170 and flies it regularly—but very conservatively—in the slightly warmer climes of southern Illinois.

MAC INDIVIDUAL FLYING-HOUR MILESTONE AWARDS

Lt Col Sidney T. Davilla, 908 TAG
Lt Col William T. Gosnell, 773 TAS
Lt Col John J. Pevny, 907 TAG
SMSgt John A. Woutila, 53 MAS
MSgt Robert L. Radtke, 729 MAS

Col Virgil F. Batten, 463 TAW
Col Joseph R. Copenhaver, 130 TAG
Col David S. Hinton, 6 MAS
Col Kenneth W. MacAulay, 30 MAS
Lt Col Robert L. Butler, 6 MAS
Lt Col Ronald L. Edminston, 21 MAS
Lt Col Robert E. Jacobson, 143 TAG
Lt Col Edward T. Pegg, 30 MAS
Maj Marshall A. Eto, 33 ARRS
Maj Jim L. Folsom, 303 TAS
Maj James P. Gallin, 731 TAS
Maj Norman E. James, Det 1, 89 MAW
Maj William Kleinhenz, 20 MAS
Maj Wesley R. Kuhn, 36 TAS
Maj Warren J. Saul, 301 MAS
Maj Robert D. Saxe, 301 MAS
Maj Phillip T. Smith, 36 TAS
Maj David J. Steigmaier, 96 TAS
Maj Earle W. Stewart, 187 TAS
Sqdn Leader John D. Snell, 7 MAS
Capt Jerald C. Burgess, 730 MAS
Capt Raymond A. Garrison, 728 MAS
Capt Robert L. Johnson, 445 MAW
Capt Charles P. Schafer, Jr., 303 TAS
Capt John S. Thornburg, 303 TAS
CMSgt Robert L. Parker, 6 MAS
SMSgt Ronald E. Downs, 6 MAS
SMSgt Edward F. Kirby, 33 ARRS
SMSgt Glenn H. Scovil, 9 MAS
SMSgt Harry E. Taylor, 36 TAS
MSgt Donald L. Barnett, 30 MAS
MSgt Thomas E. Bawcom, 728 MAS
MSgt John D. Bellew, 7 MAS
MSgt John C. Funk, 6 MAS
MSgt David W. Harris, 145 TAG
MSgt Richard E. McLean, 728 MAS
MSgt Ray L. Ollis, 145 TAG
MSgt T.J. Reed, 6 MAS
MSgt David A. Silva, 143 TAG
MSgt Lyle E. Starks, 729 MAS
MSgt Erwin L. Warden, 187 TAS
MSgt Horace M. Williams, 145 TAG
TSgt Steven R. Angell, 30 MAS
TSgt Robert A. Bragg, 7 MAS
TSgt Marvin L. Brown, 30 MAS
TSgt James E. Dickey, 53 MAS
TSgt James D. Foster, 36 TAS
TSgt Gregg Helterbran, 7 MAS
TSgt John S. Livingston, 36 TAS
TSgt John N. Lloyd, 6 MAS
TSgt Phillip H. Hiller, 76 MAS
TSgt Fredrick C. Schmidt, 7 MAS
TSgt Edward J. Silberman, 15 MAS
TSgt Dan A. Whitehead, 30 MAS
TSgt David E. Williams, 30 MAS
TSgt Wilbur A. Wilson, 15 MAS
SSgt Ramon E. Guerroro, 30 MAS
SSgt Steven P. Scott, 76 MAS

Maj Jay W. Hansen, 1550 FTS
Maj John D. Oliver, 31 ARRS
Maj Gary L. Stevens, 33 ARRS
Capt Larry G. Brooks, 305 ARRS
Capt Alan G. George, 1550 FTS
MSgt Ronald T. Merritt, 71 ARRS
TSgt Ivan C. Allen, Jr., Det 1, 40 ARRS
SSgt Wayne R. Oliver, 41 RWRW

(Ranks and units are those at time of award. See MACR 900-3 for details on how to apply for your own milestone award.)

C.R. TERROR

The Portly Pilot pursues a Pulitzer Prize.

Nice thought," mumbled the Pensive Penman shifting his bulk in his hand-tooled Morrocan-leather desk chair. "All I need to do is jot down a few of my harrowing flying adventures and a Pulitzer prize is mine. Why, it's a piece of cake for the talented writer I am." So saying, C. R. Terror, the potentially potent phrase-monger, whipped a sheet of semi-erasable bond paper into his rusty Smythe-Colona and prepared to compose his prize-winning novel.

Four hours, 200 crumpled-sheets of typing bond, and 3 pots of MAC-vintage coffee later, the Wordy Warrior tossed his hands into the air in disgust. "Oh inspiration! Thy name is fickle," he sighed. Then his pudgy countenance brightened as the first original idea raced light-speed like through his subsonic brain. "What better course than to go to the source. I'll query my trusty crew," the Bombastic Buffoon babbled. Lurching to his feet and reaching for his imitation-gold and simulated-ivory French provincial telephone, he mumbled again. "I'll get m'crew to come over here, we'll quaff a few of my 'tinis and then we'll brainstorm a few stories that will guarantee me that Pulitzer. I'll even promise to mention them in the credits. How can they refuse?"

How could they refuse indeed? They *all* tried, though. Still, it wasn't long before the Silver-tongued Flyboy had begged and coerced his reluctant crewmembers into helping him with his writing project. It was early evening when the entire crew finally

assembled in C.R.'s "palacial" (to use his term) bachelor apartment. Long Suffering Sam, Blinky, Max Torque and Ty Downs were all there, lined up uncomfortably on C.R.'s 18-foot, custom-made naugahide couch. Their discomfort soon turned to amazement when C.R. breezed into the room carrying a huge pitcher of Terroriffic 'tinis and five genuine imitation-crystal plastic martini glasses.

"Help yourselves lads and we'll get on with our brain-storming session," the Neophyte Novelist exclaimed and moved to his typewriter with a flair. "You lads come up with some details on my aeronautical exploits and I'll whip out some quick notes on my trusty machine here." But the entire crew sat motionless, looking at each other in awe-struck silence, staring at the Magnificent Major's attire.

"Boss, I hate to start this session with a question," Sam finally ventured. "What's with that get-up? You look like a fugitive from a Sherlock Combs movie."

"Yeah, Boss," Blinky continued. "Why the wool pants, flannel shirt and dickey? And that heavy tweed coat with the leather elbow patches? I mean, this is October but it's at least 70° outside. Are you planning to write a book on heat prostration?"

Noting the questioning look on the faces of his entire crew, C.R. proudly explained. "It's all part of the writing business, lads. All the great writers dress like this. Haven't you ever heard of inspiration? Why, just dressing like a writer started my alliterative abilities flowing. Now let's get on with the exciting details that will guarantee me, er, *us*, a best seller."

Realizing all further resistance was futile, the reluctant quartet of writer's assistants began to search their memories for tales of C.R.'s aerial accomplishments. It wasn't long before the crew, now seated more comfortably on the floor, began.

"Hey, Chief," Blinky began, "remember that last departure out of Rhineland Air Base? That really would make a fascinating story for your readers. Why, that departure with the runaway pallets and the emergency

return with the near-Buffer Zone violation is perfect!"

"I agree, Boss!" Sam excitedly continued. "And that rampside blistering by Colonel Showtime, the SOF, will show just how seriously MAC takes these missions."

"I can explain how you directed us to bypass the Dash-One procedures to correct the slat malfunction, Major," Max volunteered, remembering the resulting slat disconnect and heavyweight no-slat approach. "It was really a pretty 'novel' approach to the problem, sir."

"Sir, all these books have a humorous passage or two," Ty Downs interrupted, "and I thought I would crack up when the Rheinland aerial port quality-control types determined that it was your B-4 bag that caused the pallets to break loose and put that 2-foot tear in the aft ramp. That Chief was so mad I thought he would explode!"

The long suffering crew continued with their brain-storming session, now oblivious to the fact that the constant pounding on the Smythe-Colona had long-since ceased. Their Wordy Warrior was now deep in thought. The shouts and peals of laughter faded into the background as C.R. thought back to the events of the ill-fated flight.

It had started off as a routine flight back to the States from Germany. The normal load of cargo and 73 pax didn't concern C.R., but the late addition of an Army three-star, traveling as a MAC Mission Observer (MMO), did. In fact, the last time C.R. had dazzled Lieutenant General F. E. Eyerncan with his flying finesse, he had been subjected to a 30-minute tirade from Colonel Fang, a session he was determined not to repeat. The routine flight now was no longer routine.

"This flight's gonna be perfect," the Worried Warrior mumbled to himself as he aided his astonished crew with the bag drag. "I'll show that general what professional really means."

Startled by the oaths and groans from the bottom of the crew entrance ladder, the Paunchus Pilot suddenly remembered why he made it a practice never to be available for bag drag duty. Grasping the handle of his own hand-made,

baby-blue B-4 bag, C.R. pulled upward with all the strength he could muster. The sudden excruciating pain in his arm, though, caused the bag to dip dangerously low. Only the terrified pushing of Ty Downs forced the overgrossed bag up the ladder and into the crew entrance door, much to the relief of those below fearing a death by crushing.

Surprisingly, the rest of the Galaxy preflight, engine start and taxi went smoothly, and the Addled Aviator directed the gray-and-white behemoth to the departure end of the runway. Noting the general's attentive supervision from the jump seat, C.R. even deleted his usual stories from the before-takeoff briefing as the beleaguered crew prepared for a runway 07 departure.

Shortly after brake release though, C.R. had the distinct impression something was amiss. The first series of thumps emanating from the cargo compartment were probably caused by a chock Ty had neglected to secure, he thought. But what was that rumbling sound? Then, just after Sam called "Go," C.R. heard a loud thump from the aft end of the giant Galaxy.

"Pilot, troop compartment!" Ty Down's always calm voice activated an alarm in the AC's headset. "Sir, we've got runaway pallets back here. They've just put a huge hole in the aft ramp."

"Crimenently!" C.R. groaned, his career flashing in front of his eyes. "Gear Up! Engineer, how's our cabin pressure doing?"

"Not good," came the reply from Max. "Can't maintain pressure. There must be a hole clear through the ramp."

Slumping a little lower in his already overloaded seat, the Crest-fallen Commander broke the ominous silence that had befallen the lacerated Lockheed. "Sammy m'boy, guess we're going to emergency return to Rhineland for repairs. How about getting hold of departure and arranging it? And Blinky, you advise the command post of our, ah, difficulties."

At this point, the MMO in the jump seat entered the conversation. "Major," the general snarled. "I'm the commander in this area and I know it like the back of my hand. If you don't

begin an immediate turn, you're going to have a few more holes in your aircraft!"

The general's remarks were punctuated by a warning directed at the wounded airlifter on guard frequency. "MAC 027 turn left *immediately*. You are about to enter *unfriendly air space*."

Needing no further urging, the Field-grade Fumbler deftly turned the damaged Galaxy on the proverbial dime and returned to the friendlier western skies, overspeeding the flaps and slats in the process. Despite his pounding heart and sense of impending doom, the Master Manipulator managed to fly a marginal, no-slat approach and made his usual "carrier landing," 3,000 feet down the runway.

Once in the parking spot with engine shutdown complete, the crew was treated to a departing comment from the general. "Major Terror, you've really outdone yourself this time. My last trip with you pales compared to this fiasco. You can rest assured a full report will be made to Colonel Fang." Then, as he was almost ready to start down the ladder, another thought darted into General Eyerncan's flashing mind. "And I'm also going to send a copy to my friend, the MAC DO. Goodby Major, and I hope I never see you again!"

"Did you see the look on Colonel Fang's face when he met the C-130 that brought us back?" Sam sadly chuckled. "I'll bet some of your readers could empathize with that, eh, Boss?" Sam's last remark finally registered on C.R.'s suddenly sad faculties.

"Lads!" he exclaimed, pushing away from his desk and his overworked typing machine, "I've been thinking. This story might be too technical for your average reader. Instead, why don't we send it to the friendly folks at *The MAC Flyer*? They're always looking for stories to publish. At least our fellow flyers would understand what I—or we—are trying to say. What do you say to that, Sammy m'lad? Blinky? Max? Ty?"

Silently the group looked at one another and at the Ace Airlifter. "Sounds good to us Boss," they replied in unison. "Sounds *real* good. How about in the 'AWTH's Corner?' "

Turn Left Right Here

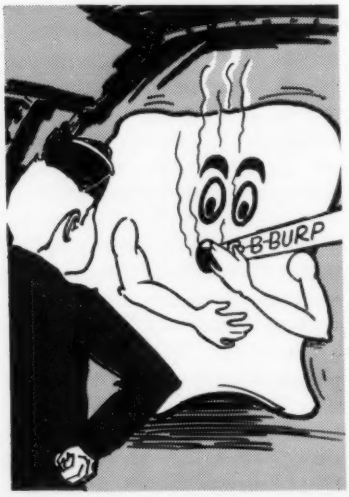
It was the last segment of this airline-type pilot's line check. The night was dark and clear, and the runway was more than long enough for the planned approach and landing. Said examinee's landing was a proverbial "grease job," although 2,500 feet past the aim point. Due to the longer than planned landing, the rollout took the aircraft to the end of the runway and, consequently, to the *very* last turnoff. Now since he had bypassed the normal high-speed turnoff, the captain may have been taxiing just a little faster than normal in order to meet his block time. And in his efforts to make up for lost time, he taxied his aircraft onto a taxiway stub and all three landing gears went off the stub and into the weeds. A truly auspicious line check! Then, nobody in MAC has *ever* been guilty of taxiing too fast—at night—at a strange field. Noooo!

—Adapted from Delta Airlines *UP FRONT*

MOGAS Malady

The Galaxy crew made an uneventful flight to their hurricane-threatened destination where they were greeted by hordes of grunting soldiers anxious to head for home. After loading up, they took off only to be assaulted by the unwelcome odor of MOGAS fuel emanating from the cargo compartment. The source of the leak was quickly located, apparently buried deep within the bowels of a pallet. The source could not be readily identified nor corrected, and an air abort followed. The problem pallet was removed, torn down and the culprit found. The "drip," it seems, came from a filled-to-the-brim pump/filter unit for a fuel bladder. Evidently nobody knew this fuel-containing device was on the pallet since it wasn't even documented. It appears the pressure of the approaching hurricane detracted somewhat from the "attention to detail" as the cargo was prepared for shipment. "One step forward, two steps back . . ."

—Courtesy 436 MAW *Flying Safety Highlights*



A Wifferdill Wahoo

Somewhere deep in "Deutschland," the trusty crew of this Herk had just completed their seventh personnel drop and the aircraft commander requested clearance for one final "dry pass." The crew received the clearance from the CCT and the aircraft commander, a stan-eval pilot, briefed the crew of the upcoming "dry run." Everything was briefed, right? Not quite! The left-seater now turns the C-130 180° to go back over the DZ in the opposite direction. His airspeed has crept up a little from the normal drop airspeed. In fact, the hurtling Herk is now roaring over the drop zone at around 230 knots. At the end of the runway, the AC now starts a 1.5 to 2.0 G pullup while simultaneously starting a climbing left turn. By the time this "whifferdill" is completed, the C-130 is now heading 270° from the original heading and is some 2,500 feet higher. Pretty neat, huh?

Wrong! A maneuver like this is never neat even if no one gets hurt, and in this case, the loadmaster was the unlucky "one." You see, the loadmaster knew the AC was going to make a dry pass. But unaware of the left-seater's real intentions, he had reached down to pick up his headset (his helmet still on from the drop). Just then, the pullup began and the loadmaster crumpled to the floor. The result of this brief breach of aircrew discipline and professionalism was a fractured ankle and a 15-day hospital stay for the loadmaster. In this case, a fractured ankle will heal. But just suppose a leading edge had departed the wing during this unauthorized maneuver. Just suppose!

Fling-Wing Flip Flop

Our fearless student pilot hovered the UH-1N 5 to 7 feet over the concrete pad below, then rotated the aircraft forward for a level-acceleration takeoff. Unfortuantely, the student allowed the Huey to enter a shallow climb prior to reaching translational lift. Recognizing a deteriorating situation, the student abruptly lowered the nose and collective, allowing the helicopter to enter a steep descent. The instructor immediately took command of the plunging aircraft and managed to avoid striking the ground at a high rate of descent, though overtemping both engines in the process. Moral: judicious use of collective and cyclic inputs must be observed during all low altitude maneuvers, especially prior to attaining translational lift. Any sudden and rapid descent begun after flying off the ground cushion and prior to translational lift will cause critical settling to the ground. This crew was fortunate. Engines can be replaced; crew and aircraft can't.

Reject!

The Starlifter crew was ready for a right seat, TRT (takeoff-rated thrust) takeoff from a non-USAF East Coast base. Checklists completed, the B-model lined up with approximately 8,000 feet of usable runway before it. Starting the takeoff roll, the pilot called "go" as the plane accelerated past 132 knots IAS. Before anyone could take another breath, however, the flight engineer called "reject" as the number 1 EGT passed through 555° Centigrade and the number 1 thrust-reverser pressure-on light came on.

After a slight hesitation, both pilots elected to abort the takeoff. Lo and behold, during the silent, unbriefed change of aircraft control during the rejected takeoff, neither pilot called for nor insured deployment of the spoilers. Meanwhile the plane continued its hurtling course down the runway crossing the departure end cable and blowing the number 6 tire. Time to call it a day, right?

The Starlifter finally came to a stop 661 feet past the overrun on a hard, gravel surface overgrown with tall, dry grass. The pilots had used maximum antiskid braking and reverse thrust to finally stop their aircraft. As the 44 passengers and 7 crewmembers safely egressed the C-141, the local fire department arrived at the scene and quickly doused both main gears with water. They also extinguished several small grass fires ignited by the hot brakes. Total damage done will probably be around $20,000.

Rejecting after "go" speed has its own set of obvious hazards, especially if you're flying a MAC-type airlifter. The lessons learned here should be engraved in everyone's memory bank for future recall. Prior planning would have prevented this "rejected" performance.

Notable Quote

Abraham Lincoln once said, "He who never makes a mistake loses a great opportunity to learn." Honest Abe was never associated with aviation—a field in which it is much wiser to learn from the mistakes of others.

—AAL *Flight Deck*

AFTER DEADLINES

SADLY, MAC FLIGHT MISHAPS CONTINUE TO RISE. We reported in the August 1982 "After Deadlines" that MAC had experienced six DOD Class A flight mishaps through the first 6 months of the year. As we go to press with this issue, three more MAC and one AFRES (MAC-gained) aircraft have crashed. In July, an HH-53 crashed near Kirtland AFB, New Mexico approximately 3 minutes after completing a night aerial refueling mission. There were four fatalities. On 1 August, an AFRES UH-1N crashed and was destroyed near Redmond, Oregon. Luckily, the aircrew suffered only minor injuries. On 31 August, a C-141 crashed south of Knoxville, Tennessee during a low-level training mission and the crew of nine was killed. Less than a day later, an H-1 crashed near Ellsworth AFB, South Dakota. The copilot was killed, a passenger was critically injured, and the pilot sustained minor injuries. The C-141 and H-1 mishaps are currently under investigation. (For a summary of MAC's tragic losses in 1982, see the back cover of this issue.)

14TH ANNUAL AIRLIFT ASSOCIATION NATIONAL CONVENTION will be held at the St. Louis, Missouri Chase Park Plaza Hotel, October 15-17. Registration fee is $60 per member and $50 for spouse or guest. For registration material, write: Airlift Association Convention, 1423-A Galaxy Avenue, Scott AFB, Illinois 62225. Permissive TDY is authorized for this event with the approval of your commander.

INDIAN OCEAN RADIO COMMUNICATONS. The Mauritius Government has expressed concern over U.S. military aircraft not maintaining a listening watch on Mauritius Flight Information Center (FIC) radio frequencies. If you are unable to contact Mauritius Radio, you should attempt to contact another aircraft or radio station working the same frequency network and request relays. Included on the same frequency network as Mauritius are the following stations: Seychelles, Nairobi, Cocos, or Bombay. Failure to make contact may result in a traffic conflict over the Indian Ocean or initiation of SAR-alerting procedures for an overdue aircraft. It isn't sufficient to pass position reports to Clark Airways or Diego Garcia. ATC messages received by these stations are not forwarded to Mauritius because there is no way to relay information to the Mauritius FIC in a timely manner. Information courtesy of HQ MAC/DOV.

WE BID A FOND FAREWELL to Lieutenant Colonel Henry (Hank) MacQueen, C-5 Flight Safety Officer and Chief of Flight Safety, 22d Air Force. Colonel MacQueen, following Defense Language School, will be assigned in May 1983 to the U.S. Defense Attache Office, Jakarta, Indonesia as an Air Force Air Attache. We at TMF wish Colonel MacQueen good luck in his new assignment.

MAC CREWS INVITED TO VISIT SHANWICK OCEANIC. Mr. R.C. Brown, Information Officer for Shanwick Oceanic, has invited MAC aircrews and operations staff to visit the Shanwick Oceanic Control facilities located in Prestwick, Scotland. He would appreciate prior notification, but can arrange a tour on short notice. Call Mr. Brown at Prestwick 79800, Extension 2611.

☆ U.S. GOVERNMENT PRINTING OFFICE: 564-017/6

MAC AND MAC-GAINED AIRCRAFT LOSSES AND FATALITIES
1JAN-2SEP 1982

AIRCRAFT DESTROYED

AIRCREW FATALITIES

PASSENGER FATALITIES

THE LOSS OF AN AIRCRAFT IS UNFORTUNATE.

THE LOSS OF A LIFE IS TRAGIC.

THE LOSS OF EITHER IS UNACCEPTABLE!

THINK, ACT AND FLY SAFE!